



Assembly Instruction for CNC base machinery  
(partly completed machinery)

Operating Instruction for CNC machinery  
(complete machinery)

Type	Model
MiniFlat	MiniFlat P20, 40, 80, 100
ModuFlat	ModuFlat P30, 60,70, 120

## About this manual

### Used shortcuts

**MD**      *Machinery directive 2006/42/EC*

### Used symbols

You will find different symbols in this manual that signalizes important information/facts and danger.



**Warning!**

This symbol indicates dangers that cause damages for person's health, physical injury or death.



**Warning! Dangerous voltage!**

Warning of danger from electricity. Ignoring can lead to serious injury or death.



**Attention!**

This Symbol indicates important notes. Ignoring this symbol leads to damages and malfunctions of the machinery



**Information:**

This symbol indicates important information and notes.

### Observe the safety instructions



***Before you take the CNC machine / CNC base machine MiniFlat or ModuFlat in operation, working with the machine or make additions or changes to the wiring of the machine / in the housing of the machine, make sure to read carefully the safety instructions in this manual. (Chapter Fehler! Verweisquelle konnte nicht gefunden werden.).***

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Despite all care, printing errors and mistakes cannot be excluded.  
For suggestions and information on errors, we are grateful.

**CE mark for (completed) CNC machinery:**

**i-dimod** CNC machinery are CE compliant and marked accordingly.

For these machines is the CE declaration of conformity valid.

**No CE mark for partly completed machinery:**

Partly completed machinery (definition from EC machinery directive 2006/42/EC) has no CE mark.

For partly completed machinery the declaration of incorporation (referred to in Annex II, part 1, section B) is valid.

For all other machinery parts and components, be applied to the CE safety directives, initial operation are prohibited until all appropriate requirements are met.

The company **i-dimod GmbH** assumes no responsibility or liability if you make any changes without the consent of the manufacturer of the machine that affect the CE-conformity of the machine.

The EMC test is valid only for the controller's original configuration ex works, i.e. the delivery state.

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*Technical changes reserved.*



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# 1 Introduction

All **i-dimod** CNC base machinery (corresponding MD 2006/42/EC **partly completed machinery**) respectively **i-dimod** CNC machinery (corresponding MD 2006/42/EC **complete machinery**) of type **MiniFlat** or **ModuFlat** are proven CNC machinery. They provide the user a wide range of possibilities for 2D or 3D processing of work pieces.

The machinery are constructed in different sizes and accomplishments. The base are exactly fitted and variable mountable standard profiles and drive units. Depending from the machinery demands according kinematics the units are mounted. The appearance of machine of one type is always the same. Applications of a concrete machine respectively the tool mounted on the Z axis are variously.

All CNC base machinery / CNC machinery of type **MiniFlat** and **ModuFlat** have a unique control and safety concept as well as a unique design of the mechanics. Each single machine becomes configured, measured and tested for many hours before delivery to the customer.

As presupposition for your work you need basic knowledge in CNC technique and PC application. It would be good to know also the terminology of the current valid MD:

- **MD 98/37/EU**      **applicable** until 28.12.2009
- **MD 2006/42/EU**   from 29.12.2009 **obligingly by law**

Please note this manual that you

- install and do commissioning of CNC base machine / CNC machine correctly
- can work safety, fast and effectively
- keep away danger from persons and the equipment
- can fully profit from the capabilities of CNC base machine / CNC machine

The statements in this manual orientate to a standard complexity of deliver the CNC machine is ready for operation. Notes not related to the machine (e.g. accessory or software) you can skip when reading the manual the first time.

The statements in this manual are basing on the following configuration / technical state of the CNC machine control system:

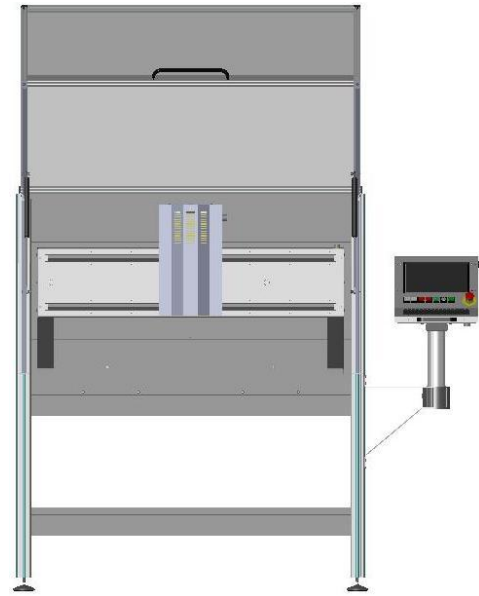
- Operator software is: **ProNC /6/ or / Remote /7/ higher then version 1.45.6.0**

For installation and commissioning the software or accessory, please note the supplemental manuals.

They are composed in the source index of this manual.

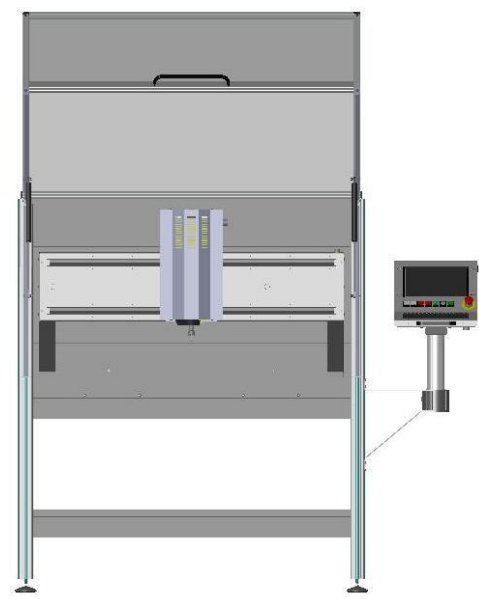
Example **CNC base machine** MiniFlat 40, ModuFlat 60

- **partly completed machine**
- equipped **without tool**, no clearly definition of application purpose
- **with / without hood/safety door**
- this CNC base machine is delivered **without CE mark**
- for this CNC base machine the **Declaration of Incorporation** is valid



Example **CNC machine** MiniFlat 40, ModuFlat 60

- **complete machine**
- equipped **with tool** milling spindle, so applicable for milling or drilling
- **hood/safety door**
- this CNC machine is delivered **with CE mark**
- for this CNC machine the **Declaration of Conformity** is valid



## 2 Intended use and reasonably foreseeable misuse

**i-dimod** CNC machinery / **i-dimod** CNC base machinery of type MiniFlat or ModuFlat are CNC controlled machinery with more than one linear axis resp. one or two optional rotation axis. The motor power amplifiers will be driven via a PC based stepper-motor-control. All control and power electronics for the axis is mounted in a control cabinet.



### Differences between CNC machine and CNC base machine:

#### **i-dimod CNC machine:**

In the new, at 29.12.2009 legally binding machine directive 2006/42/EC, is the term “**machinery**” defined as follows (quote from EC directive, article 2, letter a):

„*machinery*“

an assembly, fitted with or intended to be fitted with a drive system other than directly applied human or animal effort, consisting of linked parts or components, at least one of which moves, and [which are joined together for a specific application](#).

Each **i-dimod**-CNC-machine delivered **with a tool** (e.g. milling or engraving spindle, metering device, measuring device like CCD camera or triangulation laser, water jet nozzle, plasma burner), is for the purpose of the directive 2006/42/EC a machine, because she was manufactured for a specific purpose resp. [specific application and therewith a specific usage](#).

The usage results from the kind of tool which is mounted on a moveable axis, e.g.:

tool = milling tool	→ usage for milling, drilling
tool = engraving tool	→ usage for engraving
tool = metering device	→ usage for metering
tool = water jet nozzle	→ usage for water jet cutting

The manufacturer **i-dimod GmbH** is able to effect a legal prescribed risk assessment for the CNC-machines. CNC-machines will be delivered with a machinery enclosure.

#### **i-dimod CNC base machine:**

In the new, at 29.12.2009 legally binding machine directive 2006/42/EC is the term “**partly completed machinery**” defined as follows (quote from EC directive, article 2, letter g):

„**partly completed machinery**“

*An assembly which is almost machinery but [which cannot in itself perform a specific application](#). A drive system is **partly completed machinery**. **Partly completed machinery** is only intended to be incorporated into or **assembled with other machinery or other partly completed machinery** or equipment, thereby forming machinery to which this Directive applies;*

Each **i-dimod**-CNC-base-machine delivered **without a tool** and therefore [not for a specific application](#) is for the purpose of the directive 2006/42/EC a **partly completed machine**.

- The CNC-machine / CNC-base-machine is used for work in dry rooms (workshops, laboratories) and industrial firms (max. ambient temperature: 40°C)



- **CNC-machine:**
  - The **CNC-machine (complete machine)** is according to the type mounted on the machine tool **appropriately** used. That is, the concrete tool of the CNC machine specifies the intended use of the machine within the meaning of the Machinery Directive (Annex I, Section 1.1.2). Under this premise, the CNC-machine is suitable for milling, drilling, cutting, engraving, metering, measuring or water jet cutting. The CNC-machine is not suitable for graphite machining.
  - Appropriate processing materials are light metals, plastics, wood, glass, platinum materials, etc.
  - Not permitted are materials which produces during processing harmful gases
  - The CNC-machine is prepared for an extraction unit device. This extraction unit is preferably suitable for dry dust (wood dust, fibreglass / fibreglass dust, platinum dust, etc.).
- The **CNC base machine** (partly completed machine) can be added by you as the buyer of the base-machine with a variety of appropriate processing tools to a CNC-machine (complete machine) in compliance with the requirements of the machinery directive. You are responsible for CE certification if you use the machine itself resp. sell (bring to market). The CE certification also includes the legally required identification of a safe machine by the CE mark.
- CNC-machinery for milling processes:
  - The CNC-milling-machines are designed for milling/drilling of the following materials: **aluminium, copper, brass, plastics (e.g. GRP / fibreglass), wood**
  - The processing of magnesium is prohibited because of fire.
  - During the processing of steel / stainless steel only engraving or a processing with low cutting forces is possible.
  - It shall not be used milling spindles with a tool holder greater than ISO 25 or HSK 25 (hollow shank taper). The speed of the spindle drive may not be higher than the corresponding processing speed for the material.
  - All machines are designed for milling spindles (spindle machining, induction motor) with a maximum of 3 kW drive power.
  - Cutters and drills may be used up to a maximum shaft diameter of 12 mm.
  - The tools form cutters and conical formers for timber industry may be used up to a maximum cutting diameter of 45mm and a shaft diameter of 12 mm.
- The rapid traverse velocity should not exceed the values of 150mm/sec till 200mm/sec depending on the machine size.
- The feed rate of the processing tool in the material must be determined technologically and should be smaller than the rapid traverse speed.
- For the secure clamping of the tools in the tool holder, the user is responsible.
- To the reasonably foreseeable misuse belongs the operation of the machine by two persons. It is prohibited that one person executes a motion of the axis of the CNC machine via software (manual move or program start) or by pressing the START button on the operating console / CNC operation panel and another person is touching into the machines workspace or do work in another way when the safety door is open and an axis movement is going on.
- You are not allowed to manipulate the locking of the safety door.

### 3 Safety instructions



- Do not operate the machine in a potentially explosive atmosphere
- The machine is fully enclosed.

The transparent panes (material: polycarbonate) mounted in the machine frame resp. in the door ensure during operation of the machine (setup or working process) protection against moving machine parts as well as eventually thrown work piece fragments from the work area.

The housing protects you from moving tools, reduces the noise level and holds back chips.

The door is **locked during operation** and cannot be opened (safety solenoid interlock). Please do not change or remove this mechanism.

***You are not allowed to put a CE marked CNC machine into operation if the enclosure is not complete, intact or the polycarbonate panes are damaged.***

- The delivered CNC base machinery **without** safety door / hood are partly completed machinery for the purpose of the directive 2006/42/EC. They are delivered without a CE marking. It applies the declaration of incorporation and the assembly instruction.

**As the operator of the CNC base machine, you are responsible for taking appropriate protective measures based on your risk assessment to comply the requirements for the machine according to Machinery Directive 2006/42/EC.**

- During operation of the CNC machine, we recommend the wearing of appropriate hearing protection and appropriate protective equipment (e.g. protective glasses)
- Be careful that work pieces are tightly clamped. The use of save and suitable parts / devices for work piece clamping is one of the tasks of the operator of the CNC machine. Unsuitable not safe devices for work piece clamping can cause unfasten of work piece from device during operation. This can result in heavy damage and accidents with fatality or personal damages. In this case can also damages of tool, work piece, clamping device or other parts of the machine occur.
- In case of emergency, you will find an emergency HALT switch on your hand control unit / CNC control panel. It will interrupt power supply for the power electronics (motor power amplifiers) and frequency inverter for main spindle drive (STOP category 0 – interrupt of drives power supply)
- The key switch on the hand control unit may be used only by knowledgeable and instructed persons, because in TEST mode there is an increased risk of damage.



- Please keep the replacement key switch under your personal check.
- The operator has guarantee sufficient ventilation according accruelement of dust or gas, caused by the operation process of working pieces.
- If the sound pressure level near the machine should be higher than 70 dB(A) the operator has to wear an applicative ear protection.
- The work at and with the machine is only allowed for authorized, knowledgeable and instructed persons. Those persons have to be informed by a special instruction about possibly appearing endangerments (especially residual risk).



- Do not use running water for cooling but a spray-cooling system with a spray-fog causing the cooling effect (look accessories). Drop formation and their gathering below the mounting table must be avoided.

## 4 Scope of delivery / distribution state

### 4.1 Standard delivery

#### 4.1.1 MiniFlat

##### Models

<i>Item-No.</i>	<i>model</i>
281110 0101	MiniFlat 20 as desktop version without protection hood
281110 1101	MiniFlat 20 as desktop version with protection hood
281111 0101	MiniFlat 20 with under frame and without protection hood
281111 1101	MiniFlat 20 with under frame and with protection hood
281110 0102	MiniFlat 40 as desktop version without protection hood
281110 1102	MiniFlat 40 as desktop version with protection hood
281111 0102	MiniFlat 40 with under frame and without protection hood
281111 1102	MiniFlat 40 with under frame and with protection hood
281110 0103	MiniFlat 80 as desktop version without protection hood
281110 1103	MiniFlat 80 as desktop version with protection hood
281111 0103	MiniFlat 80 with under frame and without protection hood
281111 1103	MiniFlat 80 with under frame and with protection hood
281110 0104	MiniFlat 100 as desktop version without protection hood
281110 1104	MiniFlat 100 as desktop version with protection hood
281111 0104	MiniFlat 100 with under frame and without protection hood
281111 1104	MiniFlat 100 with under frame and with protection hood

##### Standard version

- CNC base machine MiniFlat as desktop version without protection hood
- Drive axles with ball screw spindle 16 x 5mm, 2,5mm inclusive end switches
- Controller case inclusive:
  - o Net input filter with main switch and fuses
  - o 2-phase stepper motor power amplifiers up to 4 axles with max. 4,5 A rated current
  - o Connector board with processor (core module)
  - o Security circuit module
  - o Power supply unit 48V and 24V
  - o Hand control unit with function keys and emergency stop switch
  - o net main cable
  - o communication cable
- control software Remote (**version 1.46.2.1 or higher**)
- operating instruction / assembly instruction

##### Options

- protection hood with solenoid interlock
- under frame
- compressed air connection with maintenance unit and solenoid valves
- frequency inverter max. 1,5KW
- variable speed milling spindle
- integrated control PC iPC10
- CNC control panel 10"

### 4.1.2 ModuFlat

#### Models

<i>Item-No.</i>	<i>model</i>
275409 55665	ModuFlat 30 as desktop version without protection hood
275400 55665	ModuFlat 30 as desktop version with protection hood
275408 55665	ModuFlat 30 with under frame and without protection hood
275407 55665	ModuFlat 30 with under frame and with protection hood
275419 55665	ModuFlat 60 as desktop version without protection hood
275410 55665	ModuFlat 60 as desktop version with protection hood
275418 55665	ModuFlat 60 with under frame and without protection hood
275417 55665	ModuFlat 60 with under frame and with protection hood
275429 55665	ModuFlat 70 as desktop version without protection hood
275420 55665	ModuFlat 70 as desktop version with protection hood
275428 55665	ModuFlat 70 with under frame and without protection hood
275427 55665	ModuFlat 70 with under frame and with protection hood
275439 55665	ModuFlat 1200 as desktop version without protection hood
275430 55665	ModuFlat 120 as desktop version with protection hood
275438 55665	ModuFlat 120 with under frame and without protection hood
275437 55665	ModuFlat 120 with under frame and with protection hood

#### Standard version

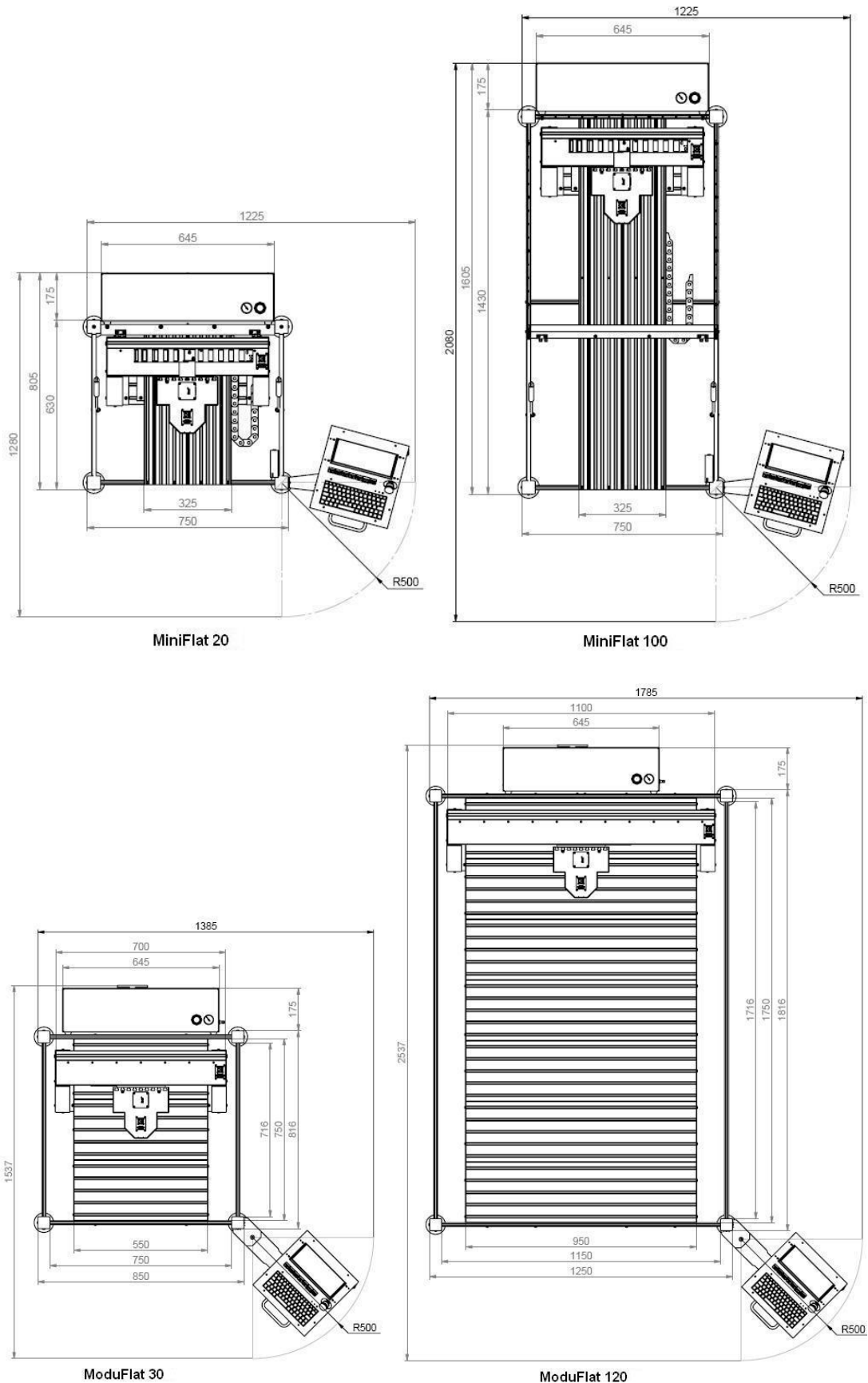
- CNC base machine ModuFlat as desktop version without protection hood
- Drive axles with ball screw spindle 16 x 5mm, 2,5mm inclusive end switches
- Controller case inclusive:
  - o Net input filter with main switch and fuses
  - o 2-phase stepper motor power amplifiers up to 4 axles with max. 4,5 A rated current
  - o Connector board with processor (core module)
  - o Security circuit module
  - o Power supply unit 48V and 24V
  - o Hand control unit with function keys and emergency stop switch
  - o net main cable
  - o communication cable
- control software Remote (**version 1.46.2.1 or higher**)
- operating instruction / assembly instruction

#### Options

- protection hood with solenoid interlock
- under frame
- compressed air connection with maintenance unit and solenoid valves
- frequency inverter max. 1,5KW
- variable speed milling spindle
- integrated control PC iPC10
- CNC control panel 10"

## 5 Installation and connection of the CNC machine

### 5.1 Space requirements



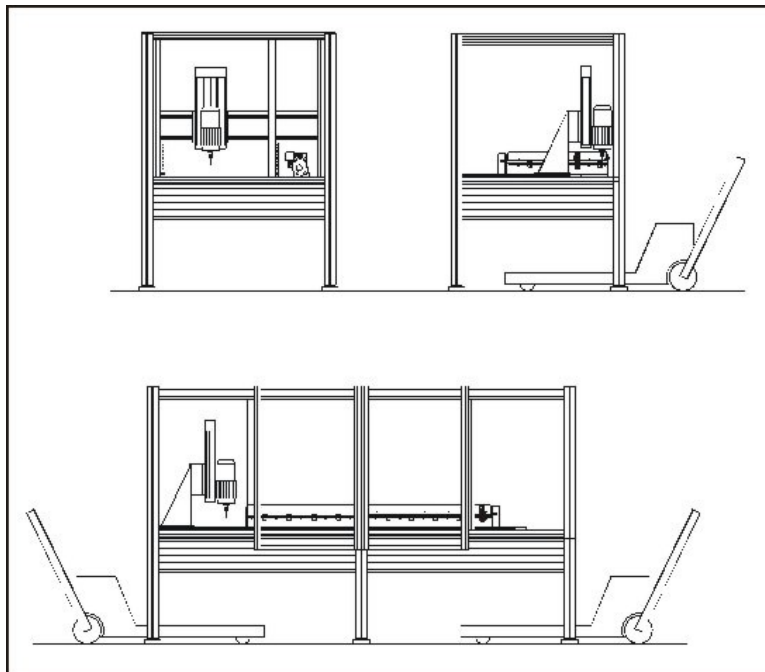
The required space for the machine is limited to the outer dimensions of the machine, the controller case and the optional CNC control panel as well as enough space in front or side of the machine to operate it and to be able to set up. The door of the machine hood opens upward so you need additional space above the machine (see also chapter 10).



***When planning the floor space for the CNC machine regard the universal access for instructed personnel during a maintenance resp. service phase!***

## 5.2 Transport of the CNC machine

Remove the transport lock from the frame feeds. Use only appropriate lifting equipment (fork lift, trucks, see picture). Lift the machine only from below and do not pull up on the cover. In case of a later transfer, please make sure that the net and connection cables are not damaged.



***Unplug the power supply cable before each transport***



**Take care during transport that the machine is not suspended to heavy vibrations.**



**Keep the triangular wrench for manual unlock of the door outside the machine.**

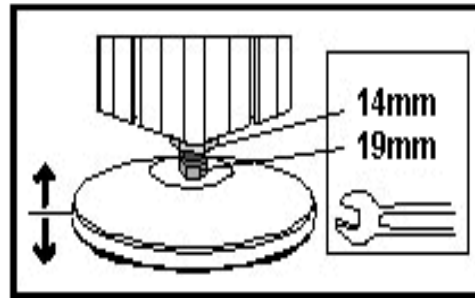
### 5.3 Installation of the CNC machine

The clamping / processing area of the CNC machine and all axes are aligned precisely at right angles from the factory.



***Never loosen the fastenings of the axles or the mounting bracket, in which the transverse axis (X-fitted axis). Otherwise, the machine must be re-measured by a technician from manufacturer i-dimod GmbH.***

Place the machine on a plane and solid area. You can compensate the unevenness of the floor / table with the adjustable feet. For precise alignment of the machine you need a spirit level with an accuracy of at least 0.1 mm/m. Save the height of the machine feet with the lock nut.





## 5.4 Enclosure

### 5.4.1 Enclosure with safety interlock on CNC machinery

The transparent panes (material: polycarbonate) mounted in the machine frame resp. in the door ensure during operation of the machine (setup or working process) protection against moving machine parts as well as eventually thrown work piece fragments from the work area.



***You are not allowed to put a CNC marked CNC machine into operation if the enclosure is not complete, intact or the polycarbonate panes are damaged.***

### 5.4.2 Mounting of suitable protection measures at CNC base machinery

The delivered CNC base machinery **without** safety door / hood resp. **without** in the machine frame fixed transparent panes are **partly completed machinery** for the purpose of the directive 2006/42/EC. They are delivered without a CE marking.

It applies the declaration of incorporation and the assembly instruction.



***You are not allowed to put the delivered CNC base machine into operation if you have not mounted appropriate protective measures.***

**As the operator of the CNC base machine, you are responsible for taking appropriate protective measures based on your risk assessment to comply the requirements for the machine according to Machinery Directive 2006/42/EC.**

## 6 Initial operation

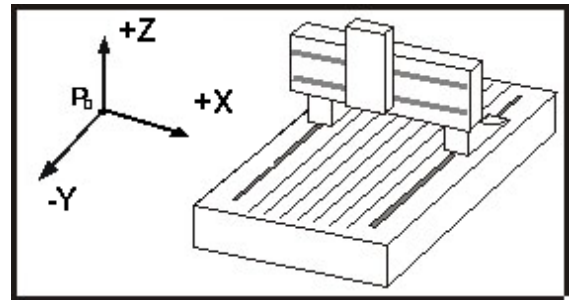
### 6.1 Preliminary

#### 6.1.1 Coordinate system and work piece zero point

The coordinate system of the CNC machine is set as a right system as shown in the picture.

The **work piece zero point** P0 be defined by the software (e.g. via teach in) or is freely programmed in the user program.

**Yellow** labels on the axes marks both the axes (X, Y or Z as axis letter for linear axes, A, B or C as letter for rotation axis) as well as the positive / negative axis direction of linear axis resp. positive / negative rotation direction or rotation axis.



*If you need to change the arrangement of the coordinates, please read the instruction manual of the control software Remote /6/.*

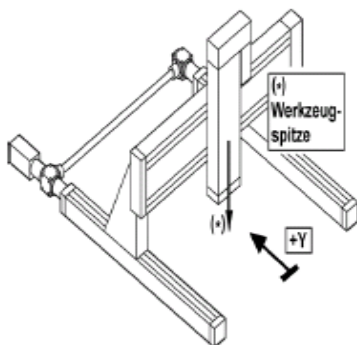
*For questions, please contact our technical support.*

#### 6.1.2 Assignment of the motion axes

The assignment of the axes depending by the user position is:

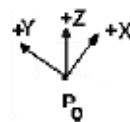
- On **flatbed machinery**:
 

X-axis = transverse axis	(+X right; -X left)
Y-axis = longitudinal axis	(+Y away from the operator; -Y to the operator)
Z-axis = lift axis	(+Z up; -Z down)



On the **flatbed machinery** (e.g. **MiniFlat**, **ModuFlat**) the work piece clamping area is mounted on the machinery frame. The work piece is not moved.

A Y-axis movement of the tool (i.e. work tool tip) in positive direction (Y+) is away from the user position.

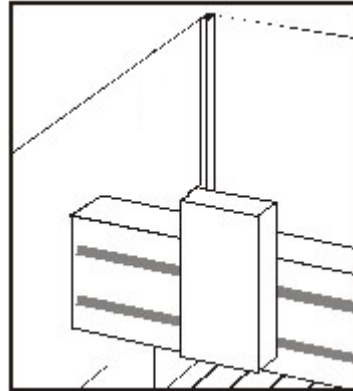


### 6.1.3 Reference point, machine zero

The **reference point** of the machine (**machine zero**) and home position are ex factory at the following axis position:

- At the back (Y-axis)
- left (X-axis)
- at the top (Z-axis)

The reference point is set by the hardware limit switches (factory set).



***The axis direction is always considering by the tool tip therewith the coordinate system is a right system (right hand regular).***

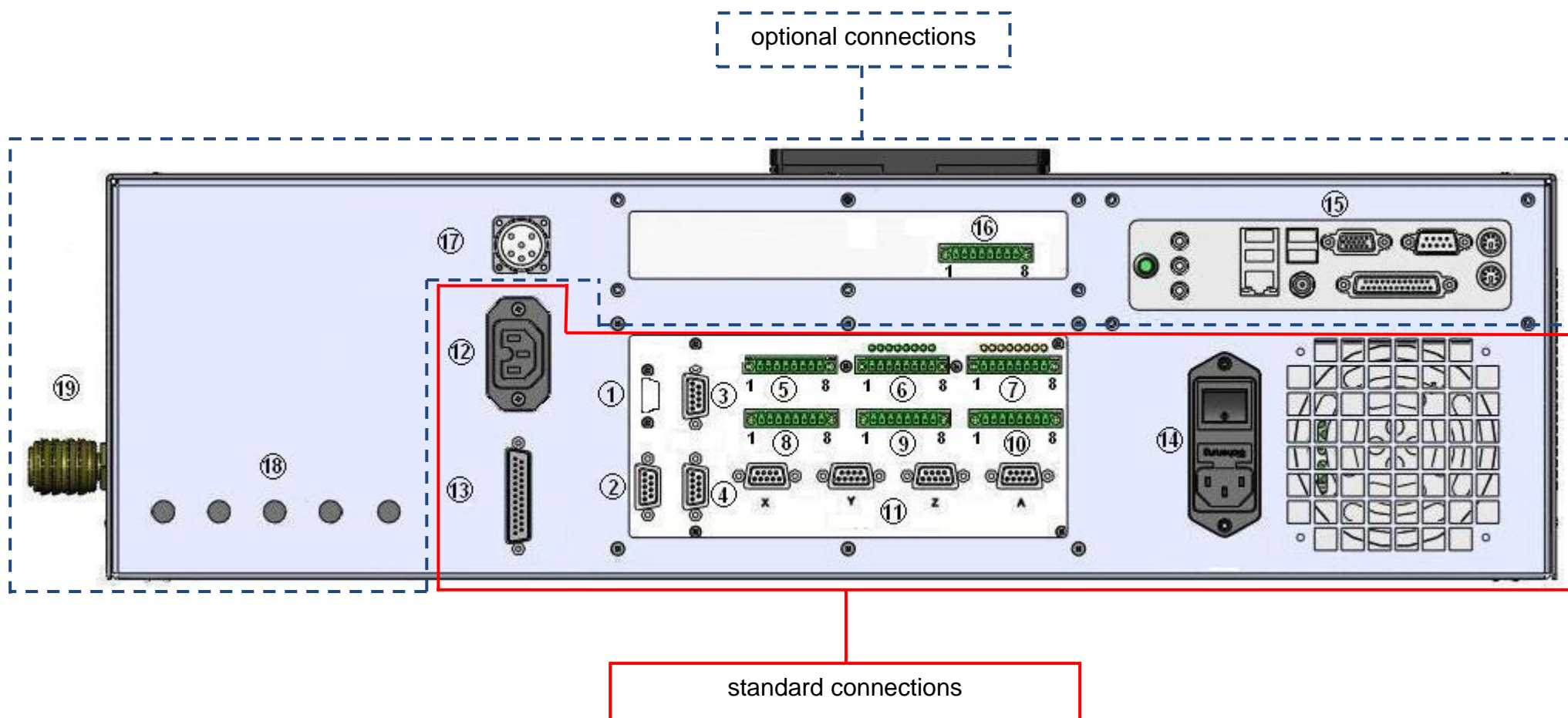
### 6.1.4 Work piece clamping



***When you set up your machine you have to use only suitable and safe clamping tools (see also chapter accessories).***

***Note that the work pieces are always solid fixed.***

## 6.2 Connections on the underside of the controller case



### 6.2.1 Connection of the standard version

#### ① **RS485 (Bus)** – bus connector (in preparation)

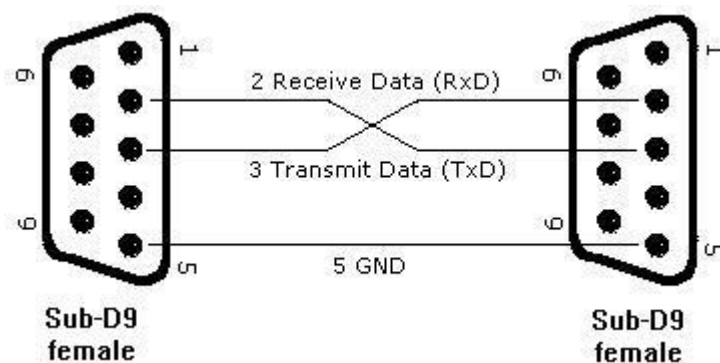
Not used in this version of the controller!

#### ② **RS232 (PC)** - programming interface, Sub-D9-pin plug

Communication between stepper motor control and control PC is realized via a serial interface (RS232). Use the delivered communication (null modem) cable for connection.

A software protocol realizes the faultless transmission of the ASCII characters. Therefore it's necessary that both systems respect the communication protocol:

- The connected control PC sends a command which ends with a line end character [CR, char (13)].
- The processor unit quits the execution or storing of a command with the quitting signal 0[char (48)] or returns an occurred error with an ASCII character unequal 0.



Data transfer parameters:

- 19200 baud
- 8 data bits
- 1 stop bit
- no parity

#### ③ **Analog - Out**, Sub-D9-pin female

Use this connector to drive an external frequency inverter with the corresponding working spindle via a 0 – 10 V analog output.

pin	description
1	+24VDC
2	n.u.
3	n.u.
4	make contact 1(potential free contact)
5	analog 0 ...10V
6	GND
7	n.u.
8	make contact 1(potential free contact)
9	GND

④ **Cover** - Sub-D9-pin female

This connector is used to integrate a door lock switch to the security circuit of the controller.

pin	description
1	+ coil break contact
2	switch 1.1 (bridge to pin 3 if no safety door is used)
3	switch 1.2 (bridge to pin 2 if no safety door is used)
4	switch 2.1 (bridge to pin 5 if no safety door is used)
5	switch 2.2 (bridge to pin 4 if no safety door is used)
6	- coil break contact
7 - 9	n.u.

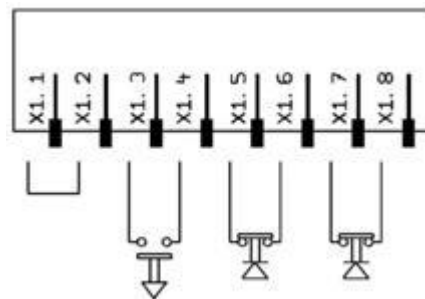


**If no cover or safety door / hood is used the pins 2, 3 and 4, 5 must be bridged. Therefore use the enclosed Sub-D 9-pin plug.**

⑤ **Remote** - security circuit interface, 8-pin female

Use this connector to include the controller into a higher ranked security circuit system. Please note that the external power input is only useable if the power button from the controller front is switched off. That will be realized by bridging the pins 1 and 2.

pin	description
1	power button select
2	power button select
3	external power (make contact)
4	external power (make contact)
5	external emergency stop channel 1 (brake contact, 11)
6	external emergency stop channel 1 (brake contact, 12)
7	external emergency stop channel 2 (brake contact, 21)
8	external emergency stop channel 2 (brake contact, 22)

**Use external emergency stop:**

- pin 5 and 6 bridged
- pin 7 and 8 bridged



**The length of the connection cable for the external emergency stop button must not more than 5m.**

**Use external power button:**

- pin 1 and 2 bridged
- connect external power button (make contact) on pin 3 and 4

## ⑥ **Output** - digital outputs, 8-pin female

The controller has 8 digital user outputs. Use these outputs to connect external devices like relays, or inputs from other devices. The maximum load of each relay output is 24 VDC/300 mA.



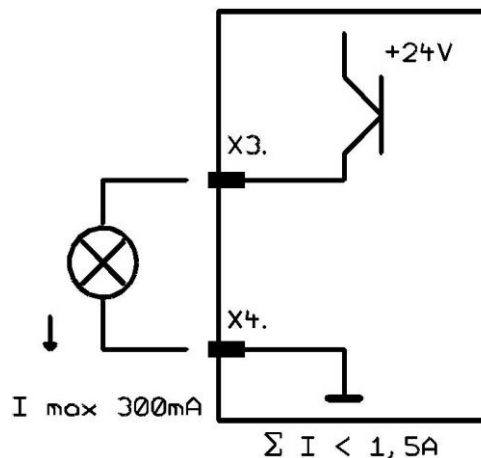
**Do not short 24VDC reference potential of the controller with GND or case ground.**

**If you have pushed the emergency stop switch all states of the binary user outputs will be maintained and not reset!**

The binary user outputs 1 – 8 (left to right) must be wired as shown opposite.

The transistor outputs (output 1 – 8) can be rated with 300 mA per output.

If all outputs are switched (1-active) the maximum load of the internal 24VDC power supply unit is 1, 5 A (ca. 180mA per output).



## ⑦ **Input** - digital inputs, 8-pin female

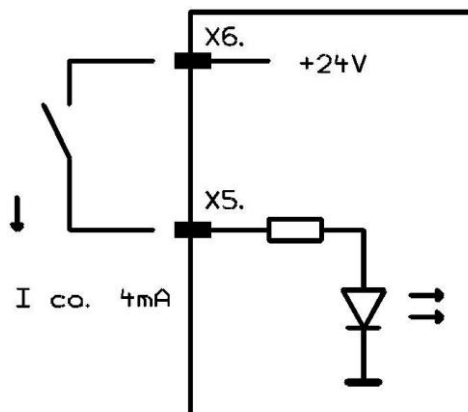
The controller has 8 digital user inputs. Use these inputs to connect external devices like sensors, switches or outputs from other devices. All inputs are optodecoupled. If +24VDC lies on the input a logical HIGH is signaled. Not connected (e.g. switch open) a logical LOW is signaled.



**Do not short 24VDC reference potential of the controller with GND or case ground.**

The binary user inputs 1-8 (left to right) must be wired as shown opposite.

The load of the controller internal 24V power supply unit amounts on 1-active state 4 mA per input.

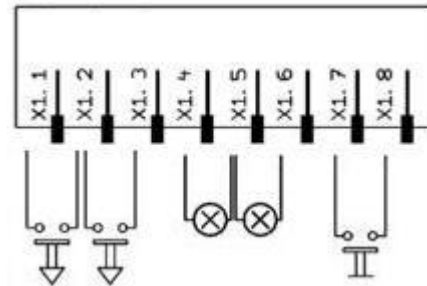




⑧ **Impulse** - interface impulse control, 8-pin female

Use this connector to integrate the function keys start button, stop button and reset from the controller front side as external signal inputs.

pin	description
1	input external START button
2	+24VDC
3	input external STOP button
4	output lamp START button
5	GND
6	output lamp STOP button
7	input length measure switch
8	+24VDC



If the external STOP button is not used pins 2 and 3 must be bridged.

⑨ **GND** - GND connection of the 24V DC, 8-pin female⑩ **+24V** - +24V DC, 8-pin female⑪ **Stepper-Motor** - motor axis X-, Y-, Z-, A, Sub-D9-pin socket

SubD-9-pin connector for motor modules (CNC axis)



**Connect / disconnect the Sub-D plug only if the controller is switched off. Ignoring this instruction can lead to damage the motor cable or stepper motor amplifier.**

pin	description
1	motor phase 2B
2	motor phase 2A
3	motor phase 1B
4	motor phase 1A
5	+24VDC
6	brake (+24VDC/1,8A output with reference potential GND)
7	limit switch 2 (Input → +24VDC, if limit switch 2 is not actuated: NC)
8	GND
9	limit switch 1 (Input → +24VDC, if limit switch 1 is not actuated: NC)



**The connection of a stepper motor with brake is only on the connector of the Z-axis possible. At this jack the switching signal (+24 V to pin 6) for the motor brake is provided.**



⑫ **Working spindle** – 115/230V output, 3-poles

Use this output connector to directly tap a working spindle without speed control. Use the delivered mating connector. Maximum load of the relay output is 230 V AC / 6A.

⑬ **Control elements** - Sub-D25-pin plug

On this connector you can plug the control elements (button, switches) from

- an external control console (standard version)
- the front-side of the machine
- the mounted CNC control panel (CNC - control panel 10")

with the corresponding signal connector of the security circuit module inside the controller case.

⑭ **AC-Input** - net input module 230 VAC, 60 Hz

The net input module consists of net input socket, net filter, fuse holder and net main switch. Connect the controller via delivered net cable to a free receptacle. After that you can switch on the controller with the net main switch.

## 6.2.2 Optional connections for components

⑮ **iPC 10** – connection for control computer iPC10, 8-pin female

The control computer iPC10 is used instead of an external PC/notebook. Operating units, such as mouse, keyboard and monitor can be plugged to the corresponding connectors. The existing serial port (RS232, COM) is used for communication with the machine control in CNC and DNC mode. Detailed information can be found in the user manual of the iPC series /3/.

### Using the iPC10 with a isel CNC control panel

To use the iPC10 with a CNC control panel (see also /4/ CNC control panel operating instruction) you have to connect the 8-pin connector of the CNC control panel to the 8-pin socket ⑯.

The wires on the plug connecting the power button on the right side of the CNC control panel, the LEDs on the front panel and the power supply for the LC display with the appropriate connectors on iPC10.

Switch the iPC10 on by shortly pressing the button on the right side of the CNC control panel. The power LED (green) on the CNC control panel should now shine.

**⑩ Connection for CNC control panel -8-pin female**

To use the iPC10 with a CNC control panel (see also /4/ CNC control panel operating instruction) you have to connect the 8-pin connector of the CNC control panel to the 8-pin socket ⑩.

The wires on the plug connecting the power button on the right side of the CNC control panel, the LEDs on the front panel and the power supply for the LC display with the appropriate connectors on iPC10.

Switch the iPC10 on by shortly pressing the button on the right side of the CNC control panel. The power LED (green) on the CNC control panel should now shine.

<i>pin (left to right)</i>	<i>function</i>	<i>description</i>
1	PWR BTN +	power button +
2	PWR BTN GND	power button GND
3	PWR LED GND	Power status LED GND
4	PWR LED +5VDC	power status LED +
5	HDD LED GND	HDD activity LED GND
6	HDD LED +5VDC	HDD activity LED +
7	+12VDC	power supply for LC display +12V
8	GND	power supply for LC display GND

**⑪ Main spindle drive connector**

Use this connector to tap speed controlled working spindle (asynchronous motor, e.g. iSA500). The (optional) frequency inverter is mounted inside the controller and will be controlled over the security-circuit- and I/O-module.



**Only machinery models with frequency inverters!**

**⑫ Compressed air outlet from solenoid valves**

Depending on the installed components (e.g. vacuum table, cool spray device) can be integrated here for up to five solenoid valves in the controller case.



**Note the air pressure values for the respective components in chapter 7 - Accessories.**

**⑬ Compressed air supply valve with integrated maintenance unit**

Compressed air supply from compressor.

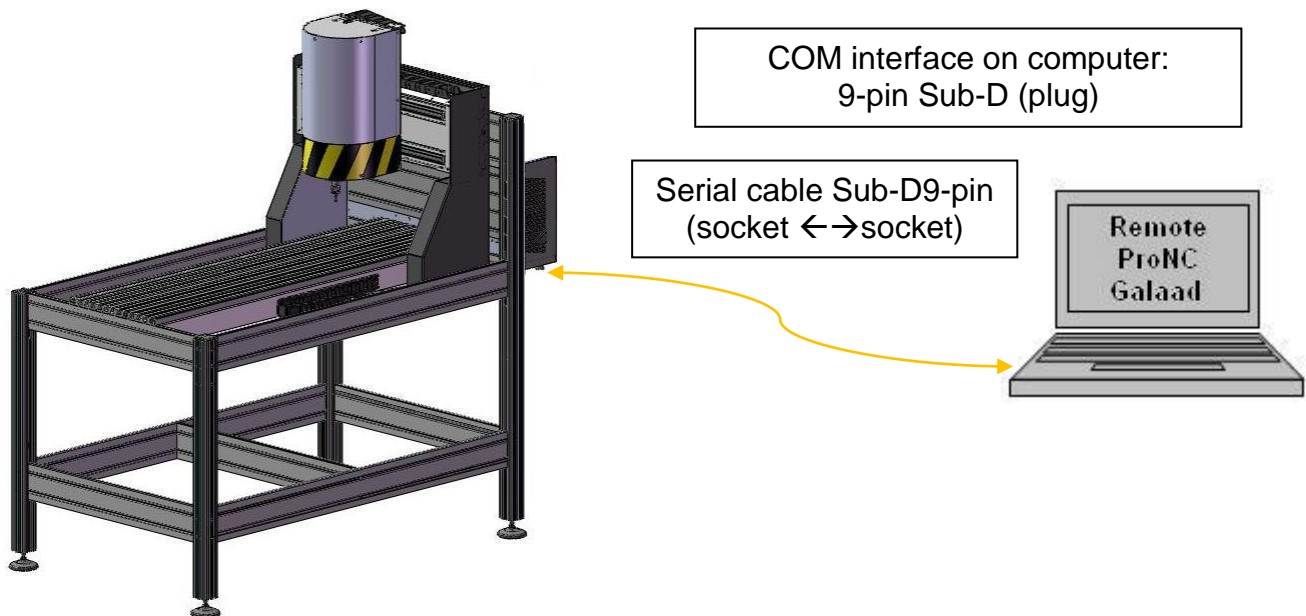
### 6.3 Operation modes

The processors operating system (firmware processor core) provides the following operation modes:

- DNC-mode of the control:
  - Computer/Laptop is permanent connected to the stepper motor controller via serial interface
  - Software Remote(optional: ProNC, Galaad) is used to operate the controller
- CNC-mode of the control:
  - The stepper motor controller executes user programs stand alone without a connected PC/Laptop
  - Software PALPC 2.1 is used for programming and download of user programs into the flash memory of the controller

In **DNC mode** the stepper motor controller of the machine is connected permanently via RS-232 interface with a control computer (IBM compatible PC or Notebook).

A user program stored in flash memory will not be executed. The commands to execute an action/motion (e.g. reference motion, motion of the axis or I/O actions) will be sent by user software from the computer with the new Remote (optional: ProNC, Galaad) motion control for 4-axis stepper motor controller (IMC4 compatibility mode).

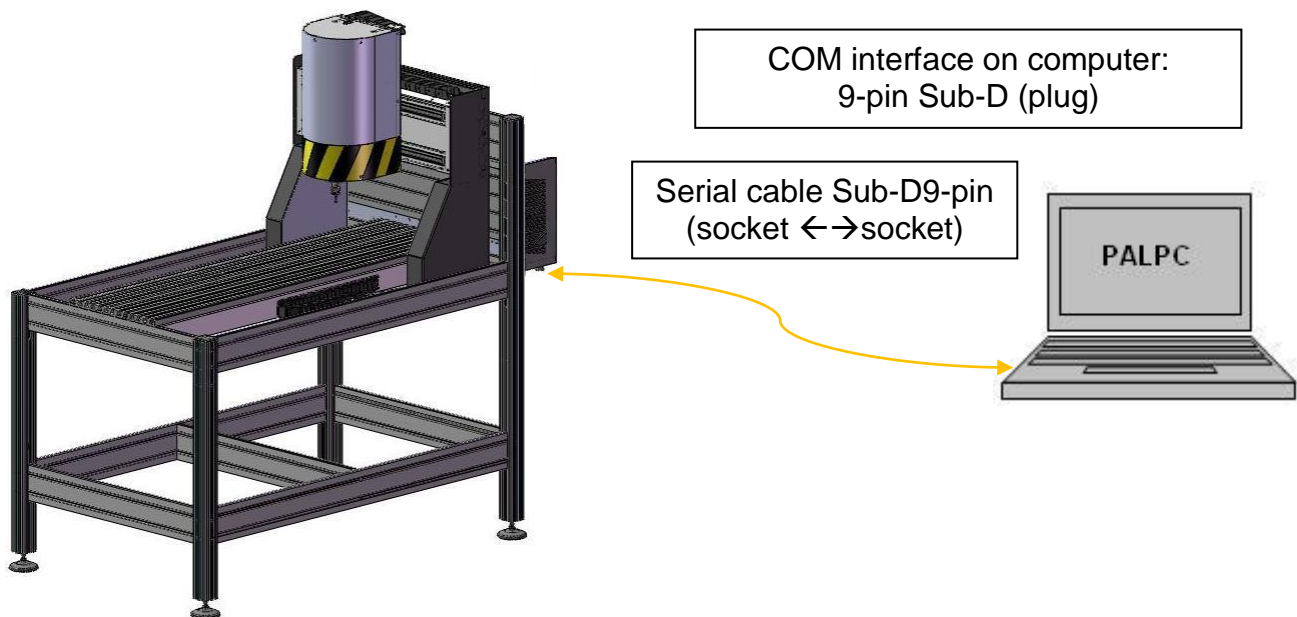


The **CNC mode** (automatic mode = CNC mode) is the program controlled mode of the stepper motor control of the machine.

That means that a user program which is saved in the controller's memory (flash) will be executed till the end.

During the automatic mode (CNC mode) you can stop the execution of the active user program by pressing the STOP-key on the hand control unit / CNC control panel or by using the external STOP input.

A following operation of the START-key hand control unit / CNC control panel or the activation (1-active) of the external start input effects the resumption of the automatic mode.



## 6.4 Door lock



***For special cases (e.g. door lock defect or loss of power supply voltage of the machine) you can use the triangular key (enclosure of the CNC machine) to open the door lock manual.***

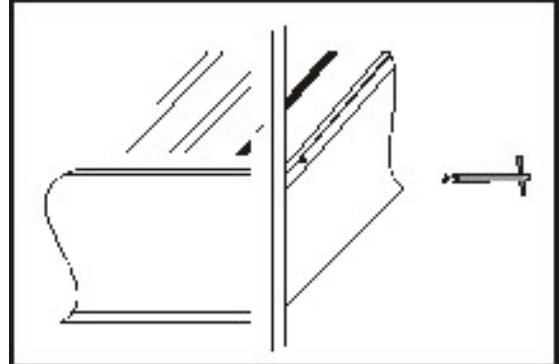
### Manual door unlock:

1. Switch off the machine.
2. Turn the triangular key – without using great force- a half turn to the left and open the door.



**The stepper motors of the machine are not powered.**

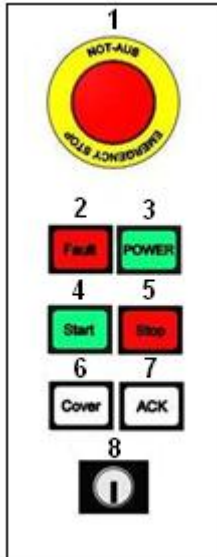
3. Turn the triangular key back to the right.



***You may not operate the machine in this state.***

## 6.5 Operation elements

The operation of the CNC machine takes place via the buttons on the external hand control unit or optionally via the buttons on the CNC control panel / 4 /.



external hand control unit



CNC control panel

### 1 - emergency stop switch

Turns off the power supply for the motor power amplifiers and the working spindle in case of any danger. This means dangers for the user's health or machine safety. The integrated security circuit is applicable till safety category 3 (DIN EN945-1).



**If you push the emergency stop switch the motor power supply will be switched off immediately (DIN EN 60204-1, stop category 0) and any axes motion will be stopped.**

**The main power supply voltage of 115/230VAC lies still on the device, only the motor power supply voltage for the amplifiers is switched off.**

### 2 - fault-lamp

The fault lamp indicates an error within the safety circuit.

### 3 - POWER button

Use this button to switch on motor power supply voltage for the motor power amplifiers.

Conditions for switch on:

- Main power switch on the controller back side is switched on
- Emergency stop button is pulled out



***Be sure that the contacts for external emergency stop switch on the remote connector are bridged!***

If power supply voltage is successfully switched on the power button is lighted green.

#### **4 - start-button**

If you press the start button in CNC mode (see chapter 6.3 Operation modes) a saved user program in the flash memory will be executed.



**You cannot use the start switch in DNC mode.**

#### **5 - stop-button**



If you press the stop button in **CNC mode** an active user program / axis motion will be stopped. You can continue the execution of the user program by pressing the start button.



If you press the stop button in DNC mode an active user program / axis motion will be stopped.  
To continue the execution of the user program you have to use the controller software (ProNC, Remote).

#### **6 - cover-button**

Use this button to open the machines cover or safety door. This is possible only if the conditions from point “6 – operation mode switch“are complied. An enable for opening of the cover or safety door is signalized by a white lighted cover button.

#### **7 - ACK (ACKnowledge-button)**

This button has no function on 4-axis-Controller iMC-M and iMC-MP.

#### **8 - operation mode switch (key switch)**

Use this switch to choose between automatic- and setup-mode.



In **automatic-mode** you can **only open** the **cover or safety door** of the machine if **no axis is in motion** and the mounted **working spindle** is **switched off** (means that spindle does not turn).

In the **setup-mode** you can **only open** the **cover or safety door** of the machine if the mounted **working spindle** is **switched off** (means that spindle does not turn). You can just **move the axes at opened cover or safety door** if you **press the ACK button**.

***Ensure that in setup-mode (key switch on TEST) only authorized personal operates on the machine.***

## 6.6 Installing the CNC operation software

The CNC software

- **Remote**

supplied with your CNC machine is inclusive of the relevant manuals.

- **Remote operation instruction /6/**

The manuals are stored in PDF format on your installation medium.



*For installing **Remote** please read the operation instruction of the software Remote on chapter 2.8.3.1 „Configuration“/6/.*

*More information on the CNC software, please see the appropriate manuals or the ReadMe files on the installation media.*



*Alternatively you can start the installation assistant.*

*This assistant will guide you through the setup process.*



## 7 Accessories

Matching for each CNC machine, you can order the following accessories:

- clamping set (clamp lever SH1,SH2, 2 stop rails, hexagon socket wrench)
- additional mounting material for T-groove panel
- bench vise 1, 2
- additional collet chucks for working spindle
- tool kit cutter, driller, graver
- three different tool changer (linear, direct or round changer) with high frequency main spindle drive, option: length measurement button
- rotation axis(axes)
- main spindle drive iSA 500, 750, 900
- working spindle UFM 500, UFM 1050
- vacuum clamping system **isel-Vakufit**
- pneumatics accessories
- cold air cooling **isel-CoolMin**: cooling unit with cold air nozzle (up to -20°C)
- exhaust unit
- industrial vacuum cleaner
- engraving spindle
- diamond engraving head
- spray-/cooling unit, cooling medium HL4
- **isel**-special grease for central lubrication
  - fat cartridge: article number: 299032 0002
  - greaser: article number: 299032 0003
- CAD/CAM software isyCAD/CAM 2.5, Galaad/Lancelot, ProNC /6/



### **Information for compressed air connection of accessories:**

*To use the optional vacuum clamping system or the tool changer and collets of the working spindle it's necessary that the location of the machine has a compressed air connection.*

accessories	air pressure	air consumption
pneumatic vacuum pump	4 - 6 bar	100-150 l/min (1 nozzle)
cold air nozzle	3 - 10 bar	100-150 l/min
cover of the tool changer	3 - 6 bar	impulse
milling spindle with automatic tool change	> 7.5 bar	impulse
on the milling spindle mounted swivel unit for exhaust (specially for woodworking)	2 bar	impulse



*The necessary software for tool changing inclusive tool length measurement is a part of the control- and programming software Remote / ProNC.*



***Look at all accessories for a professional installation and note the applicable standards and safety regulations.***

## 8 Cleaning, lubrication and maintenance



***Switch off the main switch before every cleaning or maintenance avoiding an accidental switching on.***

### 8.1 Cleaning

- Clean the machine regularly with a hand brush or vacuum cleaner (no compressed air) from all chips. This protects the mechanics from premature wear.
- The seal lips include a Teflon component and require no special maintenance.
- Clean the polycarbonate panes with a not scouring plastic cleaner.

### 8.2 Lubrication / maintenance

- The guide rails and drive shafts are fitted from the factory with a long-term central lubrication. Depending on the strain, you should regrease the guides and drive shafts in an interval of about 500-1000 hours of operation. Please use the grease gun available as accessories for centralized and the associated specialty grease.
- If you use oil, please lubricate in an interval of about 100-200 hours of operation
- Lubricate not too much at once, the wave rails and steel rails must not swim in the grease

#### 8.2.1 Basic lubrication

The drive components are lubricated at the factory with *isel* special grease. You can immediately drive the axis.

#### 8.2.2 Later lubrication

For the lubrication of linear bearings with waves is only the *isel* special grease used.

Under the following article numbers the grease can be ordered:

- 299032 0002 grease cartridge
- 299032 0003 grease gun

Depending on the application is recommended that every 500 to 1000 operating hours you have to lubricate the axles.



***Unplug the power supply cable of the machine before each lubrication process.***

### grease properties:

The *ise/* special grease has the following properties:

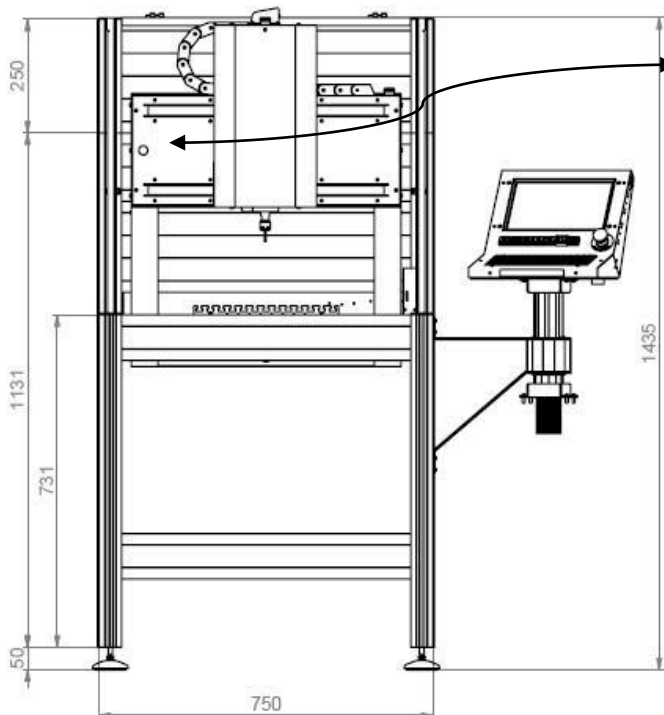
- Enormously wear out reduction
- less grease consumption
- mixable with lithium and calcium greases
- water resistant
- highly resistant against cold- hot- and salt-water as well as solvent
- temperature range:  $-25^{\circ}\text{C}$  till  $200^{\circ}\text{C}$
- fail safe  $>300^{\circ}\text{C}$
- up to six fold service life extension
- extremely good adhesion to metal surfaces

*Classification and marking complies with the EC directives 67/548/ EC and 88/379/ EC – water hazard class 1.*

### Before you start up lubrication of the axis

- 1.) Move the X-axis and Y-axis to the centre of the traversing area and the Z-Axis up to their reference position.
- 2.) Open the safety door / cover of the machine and switch off the main switch of the control.
- 3.) Unplug the power supply cable of the machine.

### 8.2.3 Lubrication of the X axis



From the operator side you can see on the X-axis (transverse axis) two white plastic stoppers.

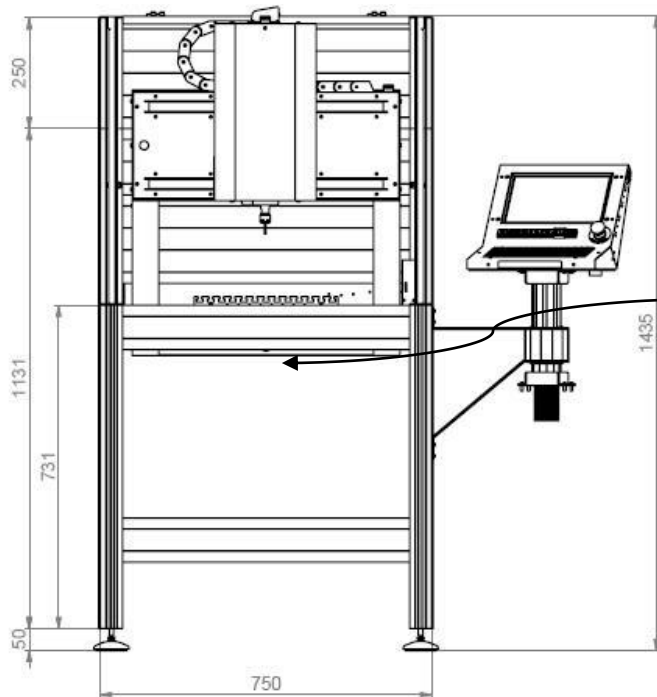
Pull the stopper out and move the axis manually left or right until you can see the grease nipples.

Lubricate the axis with the grease gun.

Push the stopper back into their original position.

*MiniFlat/ModuFlat: grease nipples on the X axis*

### 8.2.4 Lubrication of the Y axis



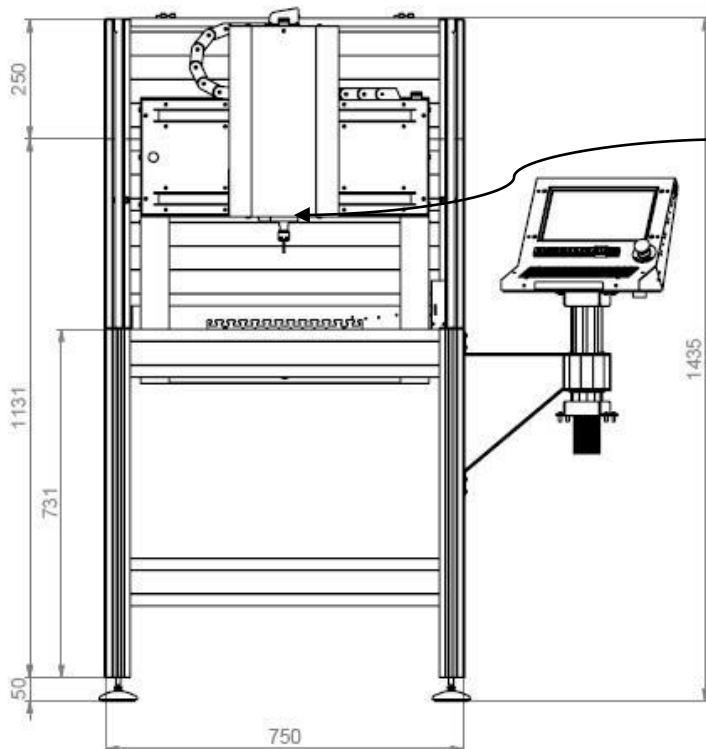
*MiniFlat/ModuFlat: grease nipples on the Y axis*

The grease nipples of the Y axis are located near the guiding rails of the axis.

If not already done move the Y axis in the half of the possible traversing area.

Start the lubrication of each single guiding rail from the bottom on the front and back side of the machine. To lubricate the ball screw you have to attach the grease gun from the rear right to the angled grease nipple.

### 8.2.5 Lubrication of the Z axis



*MiniFlat/ModuFlat: grease nipples on the Z axis*

On the Z axis (vertical mounted to the slide plate of the X axis) is on the lower side (bearing surface side relating to drive) a cover plate is mounted. Remove the fixing screws and the cover plate.

Under the cover plate is located a grease nipple. Attach the grease gun on the grease nipple and lubricate your axis.

If you have finished the lubrication, mount the cover plate again to the Z axis.

## 9 Faults

<i>Error</i>	<i>reason</i>	<i>solution</i>
machine will not turn on	net input plug not connected	check net input cable connection
	main switch not switched on	switch on main switch
	fuse defect	remove net input plug, renew fuse
power supply voltage cannot switch on by POWER button	hood / door is not closed	close hood / door
	Emergency stop switch is unlocked	unlock Emergency stop switch
software works not correctly	main switch not switched on	switch on main switch
	power supply for the power amplifiers not switched on	power amplifiers by pressing POWER-button
	motor cables not connected	check motor cables
no communication via serial interface	incorrect COM port selected	select correct COM port
	incorrect baud rate	select 19200 baud
milling spindle is not working	incorrect setting in the spindle module DLL (only DNC mode)	check settings and change if applicable
	switch on the milling spindle (only 115/230 V) is switched OFF	switch on
moving distances of the axes is incorrect	spindle pitch is not correct in the software Remote (in DNC mode)	change spindle pitch in software Remote/6/
	spindle pitch is not correct set in the initialize section of user program or in the programming software PALPC (in CNC-mode)	change spindle pitch in the user program or programming software PALPC

## 10 Technical data of the CNC machine / CNC base machine

### 10.1 Clamping area and Traversing range

#### MiniFlat

	MiniFlat 20	MiniFlat 40	MiniFlat 80	MiniFlat 100
<b>Traversing range X/Y/Z in (mm)</b>	300 x 200 x 150	300 x 400 x 150	300 x 800 x 150	300 x 1000 x 150
<b>Table clamping area W x D in (mm)</b>	325 x 600	325 x 800	325 x 1200	325 x 1400
<b>Opening (mm)</b>	200			
<b>Dimensions W x D x H in (mm)</b>	750 x 630 x 700	750 x 830 x 700	750 x 1230 x 700	750 x 1430 x 700

#### ModuFlat

	ModuFlat 30	ModuFlat 60	ModuFlat 70	ModuFlat 120
<b>Traversing range X/Y/Z in (mm)</b>	400 x 300 x 150	400 x 600 x 150	800 x 600 x 150	800 x 1200 x 150
<b>Table clamping area W x D in (mm)</b>	550 x 750	550 x 1000	950 x 1000	950 x 1750
<b>Opening (mm)</b>	200			
<b>Dimensions W x D x H in (mm) without base frame with base frame</b>	850 x 820 x 730 850 x 820 x 1310	850 x 1070 x 730 850 x 1070 x 1310	1250 x 1070 x 730 1250 x 1070 x 1310	1250 x 1820 x 730 1250 x 1820 x 1310

### 10.2 Mechanical values / electrical values

#### MiniFlat

<b>Guides</b>	linear units with precision steelshafts and ball circulation skid, clearance free adjustable			
<b>Process speed X/Y/Z in (mm/s)</b>	100			
<b>Repeat accuracy (mm)</b>	≤ 0,02			
<b>Drive motors</b>	stepper motors			
<b>Drive elements X/Y/Z</b>	ball screw assemblies adjustable backlash-free			
<b>Control</b>	Step-Controller iMC-P with 4 motor power amplifiers 48V/4,5A and power supply unit 500W with CPU board, alternatively with step direction interface module			
<b>operation</b>	function keys, Emergency OFF (optional: CNC control panel)			
<b>Software</b>	PAL-PC, Remote (optional: Windows, ProNC, isyCAD/CAM, Galaad)			
<b>Weight (kg)</b>	ca 60	ca 66	ca 78	ca 84

Controller case with net input (1-phase):

100 - 230VAC, 50...60 Hz, L1/N/PE,  
Net fuses: 6,3A, slow

Connection type: not fixed installation according to EN 60204-1, section 5.1 „*net input connectors*“

## ModuFlat

<b>Guides</b>	linear units with precision steelshafts and ball circulation skid, clearance free adjustable			
<b>Process speed X/Y/Z in (mm/s)</b>	50/100			
<b>Repeat accuracy (mm)</b>	≤ 0,02			
<b>Drive motors</b>	stepper motors			
<b>Drive elements X/Y/Z</b>	ball screw assemblies adjustable backlash-free			
<b>Control</b>	Step-Controller iMC-P with 4 motor power amplifiers 48V/4,5A and power supply unit 500W with CPU board, alternatively with step direction interface module			
<b>operation</b>	function keys, Emergency OFF (optional: CNC control panel)			
<b>Software</b>	PAL-PC, Remote (optional: Windows, ProNC, isyCAD/CAM, Galaad)			
<b>Weight (kg)</b>	ca 60	ca 66	ca 78	ca 84

Controller case with net input (1-phase):

100 - 230VAC, 50...60 Hz, L1/N/PE,  
Net fuses: 6,3A, slow

Connection type: not fixed installation according to EN 60204-1, section 5.1 „*net input connectors*“

## 10.3 Sound pressure level

The sound pressure level varies by application and toolkit.

Sound pressure level without working spindle: **< 75 dB (A)**



*Technical changes reserved!*

## 11 Declaration of Conformity or Declaration of Incorporation?

In the new, at 29.12.2009 legally binding machine directive 2006/42/EC, the term “**machinery**” is defined as follows (quote from EC directive, article 2, letter a):

„**machinery**“

- An assembly, fitted with or intended to be fitted with a drive system other than directly applied human or animal effort, consisting of linked parts or components, at least one of which moves, and **which are joined together for a specific application.**

For each **i-dimod** CNC machine delivered **with a tool** (e.g. milling or engraving spindle, metering device, measuring device like CCD camera or triangulation laser, water jet nozzle, plasma burner) **the Declaration of Conformity in this manual is valid.**

Those CNC machinery have to be used purposive for a **specific application**. This application results from the kind of tool mounted on a moveable axis:

tool = milling tool	→ usage for milling, drilling
tool = engraving tool	→ usage for engraving
tool = metering device	→ usage for metering
tool = water jet nozzle	→ usage for water jet cutting

and so on.

In the new, at 29.12.2009 legally binding machine directive 2006/42/EC, the term “**partly completed machinery**” is defined as follows (quote from EC directive, article 2, letter g):

„**partly completed machinery**“

- *An assembly which is almost machinery but **which cannot in itself perform a specific application.** A drive system is **partly completed machinery.** **Partly completed machinery is only intended to be incorporated into or assembled with other machinery or other partly completed machinery** or equipment, thereby forming machinery to which this Directive applies;*

For each **i-dimod** CNC base machine delivered **without a tool** (e.g. milling or engraving spindle, metering device, measuring device like CCD camera or triangulation laser, water jet nozzle, plasma burner) **the Declaration of Incorporation in this manual is valid.**

These CNC base machinery have **no purpose for a specific application.**



## 11.1 Declaration of conformity for complete machinery

### EC Declaration of Conformity corresponding Machinery Directive 2006/42/EU, Annex II A

The manufacturer

**i-dimod GmbH**  
Im Leibolzgraben 16  
D- 36132 Eiterfeld

declares hereby, that the following products

**Product designation:** *CNC machine MiniFlat / ModuFlat with safety hood and working tool*

<b>Types:</b>	<i>MiniFlat 20</i>	Item-No.: 281110 1101, 281111 1101
	<i>MiniFlat 40</i>	Item-No.: 281110 1102, 281111 1102
	<i>MiniFlat 80</i>	Item-No.: 281110 1103, 281111 1103
	<i>MiniFlat 100</i>	Item-No.: 281110 1104, 281111 1104
	<i>ModuFlat 30</i>	Item-No.: 275400 55665, 275407 55665
	<i>ModuFlat 60</i>	Item-No.: 275410 55665, 275417 55665
	<i>ModuFlat 70</i>	Item-No.: 275420 55665, 275427 55665
	<i>ModuFlat 120</i>	Item-No.: 275430 55665, 275437 55665

conforms to the safety and health requirements of the **Machinery Directive 2006/42/EU, Annex I** – including those at the time of declaration current alterations..

#### The following harmonized standards have been applied:

EN ISO 12100-1:2003	Safety of machinery – fundamental terms, general principles of design – Part 1: Basic terminology, methodology
EN ISO 12100-2:2003	Safety of machinery – fundamental terms, general principles of design – Part 2: Technical principles
EN ISO 13857:2008	Safety of machinery – Safety distances to avoid reaching of dangerous regions with upper and lower extremities
EN 349:1993	Safety of machinery – Minimum distances to avoid bruising of parts of the body
EN 953:1997	Safety of machinery – Guards – general requirements for the design and construction of fixed and moveable guards
EN 954-1:1996	Safety of machinery – Safety related parts of control systems, Part 1: General principles for design
EN ISO 13850:2008	Safety of machinery – Emergency-Halt – Design guidelines
EN 14121-1:2007	Safety of machinery – Risk assessment – Part 1: Guidelines
EN 60204-1:2006	Safety of machinery – Electrical equipment of machines, Part 1: General requirements

#### Also the following EU Directives have been applied

EMC Directive	2004/108/EG
Low Voltage Directive	2006/95/EG

The **technical documentation** for this machine was created corresponding Annex VII Part A. The manufacturer obligates to provide the technical documentation in electronic mode on demand of authorized governmental agency.

**Representative** for composition of technical documentation is: **Herr Dieter Eckart**

Place: Eiterfeld

Date: 01.06.2010

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Hugo Isert, Manager

## 11.2 Declaration of incorporation for (partly completed) base machinery

### Declaration of Incorporation corresponding Machinery Directive 2006/42/EU, Annex II B

The manufacturer

**i-dimod GmbH**  
Im Leiboldzgraben 16  
D- 36132 Eiterfeld

declares hereby, that the following products

**Product designation:** *CNC machine MiniFlat / ModuFlat without safety hood resp. with safety hood but without an working tool*

<b>Types:</b>	<i>MiniFlat 20</i>	Item-No.: 281110 0101, 281111 0101
	<i>MiniFlat 40</i>	Item-No.: 281110 0102, 281111 0102
	<i>MiniFlat 80</i>	Item-No.: 281110 0103, 281111 0103
	<i>MiniFlat 100</i>	Item-No.: 281110 0104, 281111 0104
	<i>ModuFlat 30</i>	Item-No.: 275409 55665, 275408 55665
	<i>ModuFlat 60</i>	Item-No.: 275419 55665, 275418 55665
	<i>ModuFlat 70</i>	Item-No.: 275429 55665, 275428 55665
	<i>ModuFlat 120</i>	Item-No.: 275439 55665, 275438 55665

conforms to the safety and health requirements of the **Machinery Directive 2006/42/EU, Annex I** – including those at the time of declaration current alterations.

#### The following harmonized standards have been applied:

EN 349:2008-09	Safety of machinery – Minimum distances to avoid bruising of parts of the body
EN ISO 12100-1:2003	Safety of machinery – fundamental terms, general principles of design Part 1: Basic terminology, methodology
EN ISO 12100-2:2003	Safety of machinery – fundamental terms, general principles of design Part 2: Technical principles
EN ISO 13850:2008	Safety of machinery – Emergency-Halt – Design guidelines
EN 14121-1:2007	Safety of machinery – Risk assessment – Part 1: Guidelines
EN 60204-1:2006	Safety of machinery – Electrical equipment of machines, Part 1: General requirements

#### Also the following EU Directives have been applied:

EMC Directive	2004/108/EG
Low Voltage Directive	2006/95/EG

The **technical documentation** for this **partly completed** machine was created corresponding Annex VII Part B. The manufacturer obligates to provide the technical documentation in electronic mode on demand of authorized governmental agency.

**Representative** for composition of technical documentation is: **Mr. Dieter Eckart**

The product (partly completed machine) is provided for integration in a machine or to be bonded with other partly completed machine in sense with **Machinery Directive 2006/42/EU**, Article 1, Chapter (1), Character a.

**The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of Machinery Directive 2006/42/EU.**

Place: Eiterfeld

Date: 01.06.2010

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Hugo Isert, Manager

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- /3/    **Operating instruction isel control computer iPC10:**  
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- /4/    **Operating instruction for CNC-Bedienpanel:**  
Operating instruction for CNC control panel iBP10 / iBP17;  
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- /6/    **Remote: Operation and output program for ISO-, NCP- and CNC files:**  
Software manual Remote;  
isel-automation 06/2005
  
- /7.1/    **EC machinery directive 98/37/EG**    (till 28.12.2009 **useable**)
- /7.2/    **EC machinery directive 2006/42/EG**    (as from 29.12.2009 **legally binding**)

Up to date Operating instructions and manuals for download you can find here:

[www.isel-data.de/manuals](http://www.isel-data.de/manuals)

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